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Lang Prize

1 April, 2024

#### LANG PRIZE REFLECTIVE ESSAY

I wrote “The Relationship Between Childhood Adversity and Aging: Implications for Human Healthspans” in the Fall 2023 quarter as part of the HDE 117: Longevity course taught by Dr. Carey. Dr. Carey allowed us to choose the topic and encouraged us to do so early in the quarter so we would have sufficient time to complete our research. As a Human Development major with a specific interest in child development, I decided that I wanted my paper to reflect the relationship between child and adult development. Dr. Carey encouraged my peers and I to use AI to brainstorm and it was with that tool that I settled on an initial topic. Using ChatGBT, I asked for ideas for a research paper in the fields of longevity and child development. One of the suggestions was addressing how early life experiences affect aging. Immediately, I knew that the limitations of this assignment would not allow for such a broad topic, so I narrowed it down to adverse childhood experiences and aging or healthspans. Defining my topic marked the first step of my research journey which would show me how little I knew about research and allow me to develop essential skills, including the use of library resources available to me as a UC Davis student that would support me in my research process.

Having never completed a research paper of such depth, I was completely overwhelmed. I started the process by searching Annual Reviews, as suggested by Professor Carey. I identified key words such as “aging”, “healthspans”, “childhood adversity” and “adverse childhood experiences”. I was expecting that as soon as I put my keywords in the search bar, I would be presented with an array of peer-reviewed articles that directly addressed my topic. However, that was not the case. While I found a few applicable articles and began to gain further insight on the topic, I quickly realized that I would need to both improve and expand my searching techniques. Looking back, I realize I falsely believed that I simply needed to repeat information. I did not recognize the importance of analysis and synthesis to present unique ideas or viewpoints, nor was I aware of or possessing the skills needed to do so.

Around this time, I was fortunate enough to attend two presentations on research given by librarian Melinda Livas due to my participation in the University Honors Program. Melinda provided basic guidelines and advice for research that helped me to overcome this initial challenge. If it was not for those presentations, I would still be unaware of all the resources available to me from the UC Davis library and my research would not have achieved the depth it did. One key component of Melinda’s presentation was the databases accessible to UC Davis students. She provided links to key databases in a UHP Research guide, which I accessed later. Using these databases, which included Academic Search Complete, PubMed, and JSTOR, I began to find more research regarding my topic. Additionally, Melinda explained how to use Boolean operators (AND, OR, NOT,

et cetera) which helped me to filter which results I received, saving me from scrolling through pages of inapplicable articles. Slowly, I began to gain greater insight into my topic, especially as I began to develop a greater variety of key words by noting which words articles I had already found used. These included words like “early life stress”, “telomeres”, “chronic illness”, “neglect”, and “abuse”. Such keywords addressed my topic in parts. Here, I began to see that to write a successful research paper, I would need to connect various data and ideas to create a comprehensive and cohesive paper.

With the databases and Boolean operators improving the effectiveness of my searching, I created a general outline for my paper. From the beginning, I knew that I wanted to discuss biological determinants of healthspans. My preliminary exploration helped me identify which theories and explanations to include. I also saw that the discussion would be incomplete without addressing outward signs of morbidity, like chronic disease and mental health. This first outline does not reflect my current paper, but having formed it, I felt ready to move on from the exploration stage of the information research process to the investigating stage.

My final paper has over 45 references, the majority of which are scientific journal articles. Reading this quantity of articles requires extensive time. As I commute to UC Davis, I was only on campus two days a week when I had classes, which meant that I read most of the articles at home. Being able to use Avante to access the library VPN became essential as it allowed me to access the library resources from home. Furthermore, I was continually impressed by the diversity of the resources I was able to access through the library or using the library VPN. For each article I came across, I started by examining the title to see if it was related to my topic. For the articles that appeared to be relevant, I then read the abstract to determine if I should read the full article. Because my paper examines both the biological and clinical components of aging, the articles I ultimately chose to read and use come from a variety of scientific journals, with few repeats. However, despite the diversity, I never had an issue accessing an article nor had to pay for one because of the vast array of subscriptions the UC Davis library has.

With my search strategies continuing to improve and library resources allowing me to do an in-depth investigation on my chosen topic, I soon confronted another challenge. Ironically, it was the exact opposite of my first one: I had too much information. Professor Carey provided detailed instructions for how to organize our research. He suggested creating a word document with my first outline and adding relevant information in the form of quotes and bullets under their correct heading. The idea was to get the information on paper, then process what we had later. I quickly discovered that not only were my current sections filling up with studies and statistics, but that I was adding sections for additional components of my topic that I had not previously considered. It was here that I took a step back and considered what gaps existed and which ones I wanted to try and fill. I realized that many of the studies focused on one component of human healthspans and, despite a clear connection, few researchers gave this the acknowledgement I thought it deserved. For example, in my Human Development classes, I learned how chronic disease and frailty were both phases along the morbidity

continuum, with frailty being more severe. However, that discussion was not present in the research. As such, I decided that I wanted to provide a comprehensive overview of the ways that childhood adversity could shorten the healthspan, including cellular changes, chronic disease, and frailty. This meant that I eliminated my entire section on mental health. While I had been learning more about the research process throughout the writing of this paper, this moment was a major turning point. After my initial inadequate search strategies, I was scared that I would not find sufficient information for my topic, even though a better method started producing more results. As such, I concluded my background research too quickly, without adequately refining my topic. However, at this point in researching, I learned that research is all about embracing the unknown and discovering new ideas. I also was forced to reject my linear view of the research process and acknowledge that it is a complex and cyclical.

Even with a streamlined outline and clear direction, I had to decide which sources to use in my paper. Throughout the investigation process, I had mainly been reading peer-reviewed articles as the rigorous peer-review process generally indicates higher credibility of the information. I did allow myself to obtain some information from governmental and organizational websites regarding the definitions and statistics of ACEs as these organizations provided more current information in this area. I also placed high value on currency for the section on cellular changes. My classes showed me that this was an area with evolving information, so I wanted to be sure that the research I presented was consistent with contemporary scientific knowledge. However, when it came to addressing the physical components of healthspan, I was faced with a predicament. Because the original Adverse Childhood Experiences (ACE) study was completed in 1998, there were two and half decades of research connecting ACEs to health outcomes throughout the lifespan. Little, if any, literature negated this relationship. As such, for this area I prioritized accuracy and diversity. I chose to discuss research that included samples from multiple countries and cultures, but that still agreed with what we currently know. I believe that these methods of evaluation allowed me to create a written piece that demonstrates what we currently know about childhood adversity and healthspans, as well as the depth and breadth of the topic.

Going into this project, I expected the research process to be smooth and streamlined. Identify a topic, research my topic, then write my paper. However, I learned that the process is much more complicated and messier than it appears. In hindsight, some of the challenges I faced came from my own inadequacies and lack of knowledge. I also realized that conducting research for a paper of this sort requires work and welcoming the unknown. There are always setbacks to be overcome, revisions to be done, ideas to be reevaluated, and connections to be discovered. In the end, my paper addresses my topic of childhood adversity and aging by discussing the cellular changes and chronic illnesses caused by childhood adversity that contribute to shorter healthspan and increased morbidity. While there is a plethora of research on this topic, I believe my paper starts to show the connections between all the pieces, highlighting the depth and breadth of the

impact of adverse childhood experiences. (No AI tools/technologies were used in the writing of this essay.)